REMARKS

FORMAL MATTERS:

Claims 1, 3-10, 15 and 16 are pending after entry of the amendments set forth herein.

Claims 1 and 16 are amended. Support for these amendments can be found in the claims as originally filed and throughout the specification at, for example, page 15, line 25 to page 16, line 30.

No new matter has been added.

WITHDRAWN REJECTIONS

The Applicants express gratitude in the Examiner's indication that all previous objections and rejections have been withdrawn.

INTERVIEW SUMMARY

Applicants wish to express their gratitude to Examiner Tran for the helpful telephonic interview on November 28, 2006 with the undersigned. All outstanding rejections of the claims were discussed during the interview, and particularly the rejection of the claims under §112, ¶1 and ¶2. The present amendment and arguments presented herein reflect those presented during the interview, which amendment and arguments the Examiners indicated may be deemed persuasive to place the application in form for allowance.

REJECTIONS UNDER §112, ¶1

Claims 1, 3-10, 15, and 16 have been rejected under 35 U.S.C. § 112, first paragraph for allegedly failing to comply with the enablement requirement. In view of the remarks made below, this rejection is respectfully traversed.

In making the rejection, the Office Action asserts the following:

> That is the instantly claimed method uses DNA-template to direct the synthesis wherein DNA hybridization and the chemical synthesis steps occurs simultaneously, which is distinct from the methodology of split-and-pool combinatorial synthesis that uses DNA display approach to chemical translation (see e.g. Liu: pg. 906, 1st col., lines 17-31).

In support for its position, the Office Action cites two articles published after the filing date of the resent application as defining the state of the art at the time of filing of the present application. In particular, the Office Action cites, Liu et al., a review article describing different methods of generating combinatorial libraries, and Halpin et al., an article published by the inventors of the present application (David Halpin and Pehr Harbury) describing the methods of the present invention, also termed DNA display.

However, as described in greater detail below, the Office Action has confused the present invention and its advantages with the limitations of prior methods. In particular, the cited reference notes that prior techniques were based on performing the DNA reading and chemical reaction steps simultaneously, thereby requiring that the chemical reaction conditions be compatible with DNA reading (hybridization) conditions. In particular, on page 1035 (second column, sixth full paragraph), the cited reference notes:

> The proximity approach to chemical translation uses hybridization to induce proximity-driven chemical transformations. Because the DNA "reading" and chemical execution steps are simultaneous, reactions are necessarily performed in aqueous solutions with solute, pH, and temperature conditions that promote DNA–oligonucleotide hybridization. These conditions limit the generality, efficiency, and speed of possible organic transformations.

In fact, the cited reference goes on to note that the partitioning strategy of the present invention overcomes the specific concerns cited in the Office Action:

> The partitioning strategy separates the DNA reading and the chemical step, and also introduces a solid-phase format (Halpin and Harbury 2004b). The separation overcomes incompatibility between hybridization conditions and optimal reaction conditions. Synthetic transformations are carried out using standard solvents and elevated temperature.

(Halpin et al., paragraph bridging pages 1035 and 1036).

Moreover, the cited reference also notes the following with respect to DNA-denaturing conditions:

> Rather than tailoring reactions to the narrow window of hybridization conditions, DNA reading and chemical transformation can be carried out in chronologically distinct steps (Halpin and Harbury 2004b). The DNA is first physically partitioned into subpools by hybridization, accomplishing the reading step. An appropriate reaction is then carried out on each physically separate subpool. As such, the chemical process can take place under DNA-denaturing conditions, permitting the use of organic solvents, high pH, and elevated temperature.

(Halpin et al., pages 1031, first column, third paragraph).

This advantage is further exemplified in the pending claims. For example, element (a) of claim 1 recites that the a first group of subsets of nucleic acids is formed from a pool of nucleic acid tags by contacting the nucleic acid tags with a plurality of first immobilized nucleotide sequences. Each of the subsets formed in step (a) are then reacted with one of a plurality of first reagents in the chemical reaction step of step (b). As noted in the cited reference, the concern over using chemical reaction condition that may be incompatible with DNA hybridization conditions is eliminated since by the time the chemical reaction step (step b of claim 1) takes place, the DNA hybridization step (DNA reading) (step a of claim 1) had already occurred. Therefore it is irrelevant whether the chemical reaction conditions are compatible or incompatible with DNA hybridization.

As such, the Applicants respectfully request that this rejection be withdrawn.

REJECTIONS UNDER §112, ¶2

Claims 1, 3-10, 15, and 16 have been rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Each element of the rejection is addressed in detail below.

Item A (Office Action, page 6)

The Office Action asserts that the limitation of "*reacting the chemical reaction sites of the nucleic acid tags in each subset formed in (a) with a selected one of a plurality of first reagents*" is vague because a reaction "site" does not participate in a chemical reaction. In particular, the Office Action asserts that the limitation is vague because a reaction "site" does not participate in a chemical reaction but rather a chemical compound such as a reagent, chemical functional group, protein, nucleic acid or catalyst would participate in a chemical reaction. Applicants respectfully disagree.

The specification on page 9, lines 10-13 clearly defines the "chemical reaction site" as follows:

> The term "chemical reaction site" as used herein refers to a chemical component capable of forming a variety of chemical bonds including, but not limited to: amide, ester, urea, urethane, carbon-carbonyl bonds, carbon-nitrogen bonds, carbon-carbon single bonds, olefin bonds, and disulfide bonds.

The term "chemical reaction site" is also described in greater detail on page 13, line 25 through page 14, line 4. In addition, Figure 1 shows the location of the chemical reaction site on the nucleic acid tag. Therefore, based on the specification, it is clear that the term "chemical reaction site" covers those particular entities that the Office Action asserts are involved in a chemical reaction, such a as a chemical functional group.

As such, when the limitation is read in view of the specification, it is clear that the "chemical reaction sites of the nucleic acid tags" are reacted with a plurality of reagents and participate in a chemical reaction. Therefore, the Applicants respectfully request that this rejection be withdrawn.

Item B (Office Action, page 7)

The Office Action asserts that the limitation of "*reacting the reacted nucleic acid tag in each of the subsets formed in (d) with a selected one of a plurality of second reagents*" is vague because it is unclear which part of the reacted nucleic acid tag is participating in the reaction.

Without conceding to the correctness of the rejection and in the spirit of expediting prosecution, step (e) of claim 1 has been amended to recite "carrying out the second synthetic step by reacting the **reagent-specific compound intermediate of the** reacted nucleic acid tag" in order to clarify that the reagent-compound intermediate that was formed in step (b) is participating in the reaction. Therefore, the Applicants respectfully request that this rejection be withdrawn.

Item C (Office Action, page 7)

Claim 16 has been rejected because there is insufficient antecedent basis for the limitation "tags" in line 2. Claim 16 has been amended to recite "nucleic acid tag". Therefore, this rejection may be withdrawn.

CONCLUSION

Applicant submits that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-0815, order number STAN-390.

Respectfully submitted,
BOZICEVIC, FIELD & FRANCIS LLP

Date: Dec. 4, 2006

By: _____
Edward J. Baba
Registration No. 52,581

BOZICEVIC, FIELD & FRANCIS LLP
1900 University Avenue, Suite 200
East Palo Alto, California 94303
Telephone: (650) 327-3400
Facsimile: (650) 327-3231

E:\Homework\STAN-390\Amendment in resp to final oa 9.6.06.doc